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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ROSE, KIESHA L	

ART UNIT	PAPER NUMBER
2822	

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/945,497	Applicant(s) SANDHU ET AL.	
	Examiner Kiesha L. Rose	Art Unit 2822	

-- The MAILING DATE of this communication app ars on the cover she t with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9,53-60,69-76,85-108 and 125-127 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 15.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This Office Action is in response to the RCE filed 2 October 2003.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 53-58 and 125-126 are rejected under 35 U.S.C. 102(e) as being anticipated by Clampitt (U.S. Patent 6,150,691).

Clampitt discloses a memory cell (Figs. 26 and 28) that contains a cylindrical conductive container structure (170) made of polysilicon having a bottom plate having a closed bottom and sidewall as extending upward from the closed bottom, a dielectric oxide cap (162) on a top of the sidewalls, wherein the dielectric cap is adapted to remain on the top of the sidewalls and form part of the dielectric, a dielectric layer (164) formed on the bottom plate and a cell plate (168) formed on dielectric layer and the are all formed on a substrate (102) and having a plurality of integrated circuits and memory cells.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clampitt.

Clampitt discloses the claimed invention except for the dielectric cap being annealed. In regards to the dielectric being annealed, a *"product by process"* claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972): *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); In re Fessmann, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a *"product by, all of"* claim, and not the patentability of the process, and that an old or obvious product, whether claimed in *"product by process"* claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear. Even though product –by [-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the

same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted)."

Claims 8,9,59 and 127 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clampitt in view of Yoo et al. (U.S. Patent 6,177,340).

Clampitt discloses a memory cell (Figs. 26 and 28) that contains a cylindrical conductive container structure (170) made of polysilicon having a bottom plate having a closed bottom and sidewall as extending upward from the closed bottom, a dielectric silicon oxynitride cap (162) on a top of the sidewalls, wherein the dielectric cap is adapted to remain on the top of the sidewalls and form part of the dielectric, a dielectric layer (164) formed on the bottom plate and a cell plate (168) formed on dielectric layer and the are all formed on a substrate (102). Clampitt discloses all of the limitations except for the container structure to comprise hemispherical grain polysilicon. Whereas Yoo discloses a capacitor (Fig. 16) that contains a cylindrical capacitor structure (42) comprising conductively doped hemispherical grain polysilicon (44). The container structure is formed with hemispherical grain polysilicon to increase surface area, and increase capacitance and performance. (Column 8, lines 29-33) Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the capacitor of Clampitt by incorporating the capacitor structure to comprise hemispherical grain polysilicon to increase surface area, capacitance and performance as taught by Yoo. In regards to claim 9 where the dielectric cap is annealed at 600°C to 1000°C, a *"product by process"* claim is directed to the product per se, no matter how

actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972): *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); In re Fessmann, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a *"product by, all of"* claim, and not the patentability of the process, and that an old or obvious product, whether claimed in *"product by process"* claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear. Even though product -by[-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted)."

Claims 69-74, 85-90, 93-98 and 101-106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clampitt in view of Gustavson et al. (U.S. Publication 2003/016356).

Clampitt discloses a memory cell (Figs. 26 and 28) that contains a cylindrical conductive container structure (170) made of polysilicon having a bottom plate having a closed bottom and sidewall as extending upward from the closed bottom, a dielectric oxide cap (162) on a top of the sidewalls, wherein the dielectric cap is adapted to remain on the top of the sidewalls and form part of the dielectric, a dielectric layer (164) formed on the bottom plate and a cell plate (168) formed on dielectric layer and the are

all formed on a substrate (102) with plurality of integrated circuits and memory cells. Clampitt discloses all the limitations except for a memory device, memory module, memory system and an electronic device. Whereas Gustavson discloses a memory device (Figs. 1a-7) that contains row access circuits, column access, an address decoder, controller, command link, data link, support, leads and a processor connected to the memory device. All of these circuit and processing units are provide to supply operational function to the memory device. (Page 2, Paragraph 33) Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to add row access circuits, column access, an address decoder, controller, command link, data link, support, leads and a processor connected to the memory device to provide operational function to the memory device as taught by Gustavson.

Claims 75-76, 91-92, 99-100 and 107-108 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clampitt in view of Yoo and Gustavson et al. (U.S. Publication 2003/016356).

Clampitt discloses a memory cell (Figs. 26 and 28) that contains a cylindrical conductive container structure (170) made of polysilicon having a bottom plate having a closed bottom and sidewall as extending upward from the closed bottom, a dielectric oxide cap (162) on a top of the sidewalls, wherein the dielectric cap is adapted to remain on the top of the sidewalls and form part of the dielectric, a dielectric layer (164) formed on the bottom plate and a cell plate (168) formed on dielectric layer and the are all formed on a substrate (102) with plurality of integrated circuits and memory cells. Clampitt discloses all of the limitations except for the container structure to comprise

hemispherical grain polysilicon. Whereas Yoo discloses a capacitor (Fig. 16) that contains a cylindrical capacitor structure (42) comprising conductively doped hemispherical grain polysilicon (44). The container structure is formed with hemispherical grain polysilicon to increase surface area, and increase capacitance and performance. (Column 8, lines 29-33) Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Clampitt by incorporating the capacitor structure to comprise hemispherical grain polysilicon to increase surface area, capacitance and performance as taught by Yoo. Clampitt and Yoo disclose all the limitations except for a memory device, memory module, memory system and an electronic device. Whereas Gustavson discloses a memory device (Figs. 1a-7) that contains row access circuits, column access, an address decoder, controller, command link, data link, support, leads and a processor connected to the memory device. All of these circuit and processing units are provide to supply operational function to the memory device. (Page 2, Paragraph 33) Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the devices of Clampitt and Yoo by incorporating row access circuits, column access, an address decoder, controller, command link, data link, support, leads and a processor connected to the memory device to provide operational function to the memory device as taught by Gustavson. In regards to claims 76, 92, 100 and 108 where the dielectric cap is annealed at 600°C to 1000°C, a *"product by process"* claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See

also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972): *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); In re Fessmann, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a *"product by, all of"* claim, and not the patentability of the process, and that an old or obvious product, whether claimed in *"product by process"* claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear. Even though product –by [-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted)."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiesha L. Rose whose telephone number is 571-272-1844. The examiner can normally be reached on M-F 8:30-6:00 off 2nd Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

KLR